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Specification

1. Title of Invention

Automobile Seat Apparatus

2. Scope of Utility Model Registration Claim

An automobile seat apparatus comprising seats that form a front and rear pair that are arranged in relative opposition on the cabin floor; characterized in that the seat cushion unit and the seat back unit of one of said seats are comprised of main structural units and sub-structural units arranged so as to be stacked on the seat surface side thereof, wherein, it is formed so that, while moving the sub-structural unit of the seat cushion unit to the side of the other seat, the sub-structural unit of the seat back unit is moved to the surface side of the main structural unit of the seat cushion unit, and a fold-up table and an article storage portion on the seat surface portion in the main structural unit of said seat back unit are provided.

3. Detailed Explanation of the Device

(Industrial Field of Application)

The present device relates to an automobile seat apparatus that results from providing functions as a table or article holding tray, etc., on the seat back unit side while being able to exhibit seat functions as reclining or full flat by movably configuring a portion of the seat cushion and the seat back of the front side or rear side seat, which are arranged in relative opposition in order to ensure a comfortable posture, etc., for the seated persons in a one box type automobile, for example.

(Prior Art)

In recent years, amid the resort boom, there has been much enjoyment of the outdoor life among family and friends, and automobiles are one of the things required as a means of transportation. In any case, one of the problems associated with the enjoyment driving, etc., is the level of comfort of the automobile. That is, in a common vehicle seat, a reclining mechanism that is able to turn down the seat back toward the rear is equipped, and a comfortable posture of the seated person is maintained to a certain extent. However, due to the seat being installed in the limited space inside the cabin, there are many cases in which that seat back cannot be turned downward to the back, limits in terms of achieving a comfortable posture are obtained, and it cannot be said that the passengers can sit in a relaxed posture status during a long distance drive or that driver will be able to rest adequately during the drive.

For this reason, automobile seat apparatuses resulting from a variety of configurations have been proposed for a long time, and seats resulting from a so-called full flat structure in which the level of comfort is increased by, for example, connecting seat cushions and a seat back from a pair of seats arranged so that they face each other, in an approximately level status and achieving a flat seating portion have also been proposed.

(Problems to be Solved by the Device)

However, through the conventional automobile seating apparatus described above, the space in relation to the front seat is limited, and there are limitations on the sitting

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surface of the seat in the case in which turning downward toward the rear is also limited, and, for example, when full flatness is pursued, it cannot be said that it is possible to ensure a space that is satisfactorily wide or to increase the level of comfort, so there are demands that some type of countermeasures be devised that would be able to ensure a comfortable posture that is satisfactory to the seated persons in the space inside the cabin. In particular, one of the demands accompanying the move to the aforementioned trend toward outdoor life is to provide a table and tray, etc., for placing various articles such as televisions, etc., inside the cabin, but when a seating apparatus that strives for full flatness such as that described above is employed, the wall surface portions, etc., on which the table, etc., were to be attached were eliminated except on both side portions of the cabin. For example, it is conceivable that a table, etc., would be attached to back surface side of the seat back of the seat, for example, but when used as the full flat seat discussed above, it becomes completely unusable, and some type of countermeasure that takes these problems into account and that can effectively utilize the space inside the cabin is in demand.

(Means to Solve Problems)

In order to respond to such demands, the automobile seat apparatus relating to the present device is comprised of the seat cushion unit and the seat back unit of one seat among seats that form a front and rear pair that are arranged in relative opposition on the cabin floor from main structural units and sub-structural units arranged so as to be stacked on the seat surface side thereof, it is formed so that while moving the sub-structural unit of the seat cushion unit to the side of the other seat, it moves the sub-structural unit of the seat back unit to the surface side of the main structural unit of the seat cushion unit, and it provides a fold-up table, article storage portion, etc., on the seat surface portion in the main structural unit of the aforementioned seat back unit.

(Action)

Through the present device, in order to ensure the comfortable posture, etc., of the seated persons in a one-box type automobile, by moving the sub-structural units that configure the seat cushion unit and the seat back unit of the front side or rear side seat from among a front and rear pair of seats that are arranged in relative opposition in the preferred status with respect to the main structural units, making the seat into a reclining seat or a full flat seat is pursued, and it is possible to effectively utilize a fold-up table or article storage portion, etc., that has been attached to the surface side of the main structural unit of the seat back unit when the sub-structural units are moved.

(Embodiment)

Fig. 1 to Fig. 7 show an embodiment of an automobile seat apparatus relating to the present device, and, in these drawings, in this embodiment, we will explain the case in which the present device has been applied to a centre portion seat 2 configured so that it can be arranged in relative opposition to the rear portion seat 1 from among the front portion, centre portion and rear portion seats arranged on the cabin floor in a one box type automobile, for example. Note that for the aforementioned rear portion seat 1, a commonly known seat structure consisting of a seat cushion 1a and a seat back 1b that stands up from the rear portion thereof, is presented as an example.

Also, through the automobile seat apparatus relating to the present device, in the aforementioned configuration, as is clear from Fig. 1, etc., the seat cushion unit 10 and

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the seat back unit 11 in front side centre seat portion 2 from among the seats 1 and 2 that form a front and back pair arranged in relative opposition on the cabin floor are respectively configured by main structural units 12, 13 and sub-structural units 14, 15 arranged so as to be stacked on the seat surface side thereof, and the configuration is such that while the sub-structural unit 14 of that seat cushion unit 10 is moved to the side of the other seat 1, sub-structural unit 15 of the seat back unit 11 is moved to the surface side of the main structural unit 12 of seat cushion unit 10, and, as is clear from Fig. 3 or Fig. 7, there is a special characteristic in the provision of a fold-up table 16, article storage portion 17, etc., on the seat surface portion of the main structural unit 13 of the aforementioned seat back unit 11. Here, in this embodiment, by forming depression portions 12a and 13a in a recessed manner at the centre portions 12, 13 of the main structural units 12, 13 and inserting and arranging sub-structural units 14, 15 comprising pad portions and rib structures positioned on that portion, the configuration is such that function as a normal seat cushion unit 10 and seat back unit 11 can be achieved. In addition, in this embodiment, the configuration is such that, while these sub-structural units 14, 15 are linked by means of a hinge portion 18, by means of guide rails 20 (only one side is shown) that has attached tumblers 19 provided so that they protrude at both side portions to both side portions within the aforementioned depression portions 12a, 13a, it is possible to achieve sliding movement in connection with the front, back, left and right movement of the seat. Note that a lock mechanism that is able to lock secure the sub-structural unit 14 of the cushion side to the guide rails 20 of the cushion side should be attached. In addition, 21 in the figure is a well known reclining mechanism.

Also, through this type of configuration, in order to ensure the comfortable posture, etc., of the seated persons in a one-box type automobile, etc., by causing the sub-structural units 14, 15 that configure the seat cushion unit 10 and the seat back unit 11 of the front side centre portion seat 2 from among a pair of front and rear seats 1, 2 arranged in relative opposition to move by sliding to the opposite side seat 1 side as shown in Fig. 2 with respect to the respective main structural units 12, 13 and catch securing the front end portion of the sub-structural unit 14 of the seat cushion 10 side using an appropriate catch means (not shown in the drawing), it is possible to pursue making this seat 2 a reclining seat or a full flat seat.

In addition, through the present device, as shown in Fig. 3 to Fig. 7, a fold-up table 16, 16 is provided in two stages, upper and lower, on the seat surface side within the depression portion 13a of the main structural unit 13 that configures the seat back unit 11, and through this, a loading unit for the respective articles and article storage portions 17, 17 are configured, and the configuration of the loading unit such as that for a television 22 can be such that, even when full flatness is pursued, the seat 2 itself can be ingeniously used, and it is possible to exhibit even further the effective utilization of space inside the cabin. Note that, in this embodiment, as shown in Fig. 5 and Fig. 6, an item that is configured by a pipe unit *and a plate unit, etc.*, [seal in margin: six characters added] is used as a table 16, and the case in which a belt unit 23 that supports a television 22 at a portion thereof so that it does not move due to vibrations, etc., during running of the automobile is presented as an example. In addition, 16a in the figure is the pivot portion of the table 16, 16b is the meshing protrusion portion that meshes with the

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meshing portion 16c of the side portion of the depression portion 13a during storage, and 16d is a stopper for during pulling out of the table 16.

In addition, through this type of configuration, a fold-up table 16, an article storage portion 17, as well as a tray 26 such as that presented as an example in Fig. 7, which are attached to the surface portion side of the main structural unit 13 of the seat back unit 11 may be effectively utilized when the sub-structural unit 15 is moved. Therefore, through this type of configuration, even though it is a simple and inexpensive configuration, it is possible to utilize the pair of front and rear seats arranged to be in relative opposition to ensure the comfortable posture, etc., of the seated persons in a one box type automobile, etc., as a continuous full flat seat, and in addition to it being possible to pursue the effective utilization of the space inside the cabin, it is possible to appropriately and adequately ensure rest space of the driver during rest times or rest space of the passengers during long distance trips by means of a seat that becomes a bed, and the practical advantages in pursuing effective utilization of the limited space inside the cabin are large. In addition, through the present device, there are advantages such as it being possible to effectively utilize the space obtained during movement of the sub-structural unit 15 that configures the aforementioned seat back unit 11 toward the seat cushion unit 10 side as a fold-up table 16, article storage portion 17, etc., In addition, in the configuration discussed above, the depression portion 12a of the seat cushion unit 10 side is covered by the sub-structural unit 15 of the seat back unit 11, so there is also an advantage in the good appearance, etc., Moreover, in a configuration in which the sub-structural units 14, 15 are linked by a hinge portion 18 as in this embodiment, there is also the benefit of advantages from the standpoint of operability.

Note that the present device is not limited to the structure of the embodiment discussed above, and it is possible to freely and appropriately reform and modify the shapes, structures, etc., of the respective components as necessary, and a variety of examples of form changes are conceivable. For example, in the embodiment discussed above, the case in which the present device was applied to a centre portion seat 2 that could be placed in opposition to a rear portion seat 1 in a one box type automobile was presented as an example, but a variety of form changes are conceivable such as it also being possible to apply it to the rear portion seat side or between the front portion seat and the rear side seat thereof. In addition, in the aforementioned embodiment, the sub-structural unit 14 of the seat cushion unit 10 side is configured by tumblers 19 and guide rails 20, but, for example, it is of course also possible to use slide rails 24, 24 such as those shown in Fig. 8 as the slide movement means of the sub-structural unit 14.

In addition, in the embodiment discussed above, the case in which the sub-structural units 14, 15 are linked and made to move by sliding was explained, but the present device is not limited to this, and, for example as shown in Fig. 9, the respective sub-structural units 14, 15 can be configured so that they are able to freely rotate in the forward and back directions of the seat by means of pivot portions 14a, 15a, and the fact that they may also have a configuration such that the seat cushion unit 10 side is rotated first then the seat back unit 11 side is rotated at that portion is also easily understood.

(Effects of the Invention)

As explained above, through the automobile seat apparatus relating to the present device, the seat cushion unit and the seat back unit of one seat among seats that form a front and rear pair that are arranged in relative opposition on the cabin floor are

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respectively configured from main structural units and sub-structural units arranged so as to be stacked on the seat surface side thereof, it is formed so that while moving the sub-structural unit of that seat cushion unit to the side of the other seat, it moves the sub-structural unit of the seat back unit to the surface side of the main structural unit of the seat cushion unit, and it provides a fold-up table, article storage portion, etc., on the seat surface portion in the main structural unit of the aforementioned seat back unit, so even though it is a simple and inexpensive configuration, the practical advantages are large in it being possible to utilize the pair of front and rear seats arranged to be in relative opposition as a continuous full flat seat in order to ensure the comfortable posture, etc., of the seated persons in a one box type automobile, etc., and it being possible through this to appropriately and adequately ensure rest space of the driver during rest times or rest space of the passengers during long distance trips by means of a seat that becomes a bed. In addition, through the present device, there are advantages such as it being possible to effectively utilize the space obtained during movement of the sub-structural unit that configures the seat back unit discussed above toward the seat cushion unit side as a fold-up table, an article storage portion, etc.

4. Brief Explanation of the Drawings

Fig. 1 is a schematic exploded oblique view that shows an embodiment of an automobile seat apparatus relating to the present device, Fig. 2(a), (b) and (c) are schematic views for explanation of the operational status thereof, Fig. 3 is an expanded oblique view of primary parts that shows the structure, such as that of the fold-up table, etc., Fig. 4 is a cross-sectional view at the IV-IV line of Fig.3, Fig. 5 is a schematic oblique view that shows an example of a fold-up table, Fig. 6 is a drawing that shows the usage status thereof, Fig. 7 is a schematic oblique view for explaining the usage status of an automobile seat apparatus resulting from the present device, and Fig. 8 and Fig. 9 are drawings that show another embodiment of the present device.

In the figure, 1... rear portion seat, 2... centre portion seat, 10... seat cushion unit, 11... seat back unit, 12, 13... main structural unit, 14, 15... sub-structural unit, 16... fold-up table, 17... article storage portion, 19... tumbler, 20... guide rail, 23... belt, and 24... slide rail.

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Fig. 1

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Fig. 2

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Fig. 3

Fig. 4

Fig. 5

Fig. 6

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Fig. 7

Fig. 8

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Fig. 9

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